

ABSTRACT

A cycle slip detector and detection method for a phase comparison circuit are provided. The cycle slip detector includes a cycle slip detection filter possessing a predetermined filter bandwidth and a predetermined high frequency cut-off. The cycle slip detection filter receives a phase difference generated by the phase comparison circuit and transforms the phase difference into a filtered phase difference. The cycle slip detector further includes a compensator communicating with the cycle slip detection filter.

The compensator compensates the magnitude based on a predetermined compensation response. The cycle slip detector further includes a cycle slip occurrence detector communicating with the compensator. The cycle slip occurrence detector compares a compensated magnitude of the filtered phase difference to a predetermined cycle slip threshold and generates a cycle slip output if the compensated magnitude exceeds the predetermined cycle slip threshold.